PLATFORM DATA HANDLING

STARKIT

a scalable SCOC3 development platform

The starter kit SCOC3 system (STARKIT) provides a scalable and easy-touse platform for the early development and rapid prototyping of hardware and software applications. It has been speci cally developed to enable the implementation of designs using the SCOC3 processor provided by Airbus Defence and Space, based on the SPARC V8 LEON3FT core.

The STARKIT board incorporates the SCOC3 System-On-Chip design in a large capability FPGA and all of its memories and associated interfaces (TM/TC, 1553, CAN, Spacewire...).

It comprises a custom designed PCB in Compact PCI 6U format plugged into a compact industrial 4 slots cPCI rack offering the possibility to increase the STARKIT capabilities with additional custom IO expansion boards, either on front or rear side, for full system prototyping.

With the speci c cable provided for the UART interfaces, which includes RS422 - to-USB converters for the Debug Support Unit (DSU) and monitor, the STARKIT is a ready-to-use platform. Additional cables for the other interfaces are available as an option.

Key Features

- Ready and easy-to-use platform
- Basic software available
- Compatible with any Operating Systems adapted to LEON3: RTEMS, VxWorks,...
- All-in-one solution, no external supply
- Full SCOC3 design embedded Xilinx Virtex 4 FPGA
- Power, clocks, reset and interface circuits
- On-board memory:
  - CPU and IO SDRAM 256 Mbytes
  - EEPROM 512 Kbytes
- IO interface expansion mapped on backplane
- Debug support over UART interface

Budget

- Op frequency 32 MHz
- Size 444,6 x 280 x 88,6mm³
- Mass ~8Kg
- Supply 90-264 VAC/47- 63 Hz

Main application elds

- HW and SW prototyping
- System architecture studies

Interfaces

Debug Support Unit interface (DSU)

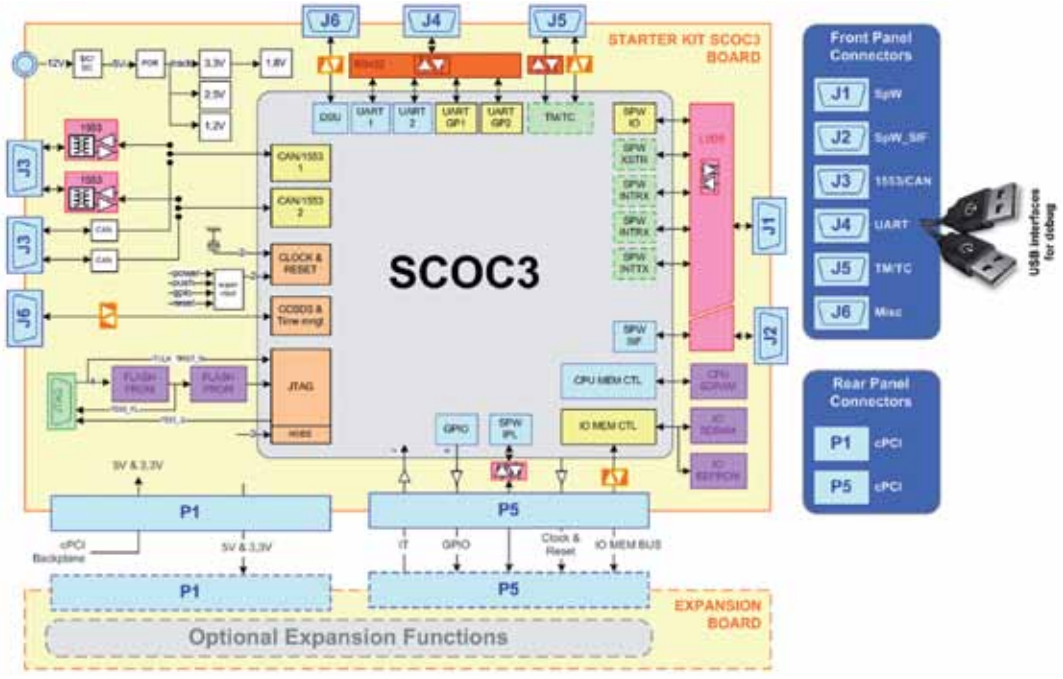
- CCSDS TC decoder, CCSDS TM encoder
- 2 MIL-STD 1553B interface (with both Nominal and Redundant buses for each interface) working in Bus Controller (BC) or Remote Terminal (RT) mode
- 2 CAN interfaces
- 4 UART interfaces: UART2 for the DSU, UART1 for the monitor, 2 UARTs IO
- 7 Spacewire links: SIF, IO, IPL (on backplane), INTRX, INTTX, USTM, XSTR
- IO backplane connect for optional expansion boards

Environment

- Temperature
  - Operating: 0° to 40°C
  - Storage: -30°C to 70°C
  - Transport: -30°C to 70°C
- Humidity: 5% to 80% non condensing in all conditions

AIRBUS DEFENCE & SPACE

Starter kit SCOC3 block diagram: the SCOC3 with all its interfaces



Software and documentation

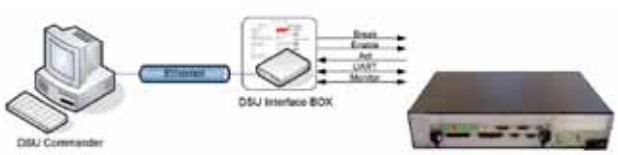
BSW - a basic SW, starting point for the flight SW development

- BOOT and BIOS
- RTOS, relevant BSP and GNU tool list
- Applicative code samples
- Developed with reference to ECSS

E40 and Q80 for compatibility with fl ight software development

DSU interface box - An Ethernet interface for STARKIT.

As an option, a DSU interface is available to connect the STARKIT on an Ethernet network



Deliverables - all necessary tools for immediate use

- 4 slots cPCI rack embedding the SK3 development board
- UART interfaces cable with USB connectors for DSU and monitor (RS422-to-USB converter included) and SUBD9 connectors for the IO UARTs
- DSU commander SW reserved for the StarKit's use only
- Additional cables (1533, Spacewire, ...) available on request Document Set - all documents available for STARKIT users
- SCOC3 datasheet
  - Presents SCOC3 features, modes, modules and architecture. Also gives the electrical characteristics, the environment limits and the interface timings
- SCOC3 user manual
  - Gives a detailed description of the HW/SW interface and of the functionality of the modules. Contains programming and detailed information
- SCOC3 application notes
  - Gives examples to ease the use of SCOC3
- STARKIT user manual
  - Gives a detailed description of the HW interfaces and confi guration elements of the STARKIT

AIRBUS DEFENCE & SPACE

PDH11 / Non-contractual document, subject to changes. This document shall not be reproduced, in whole or in part, without prior consent. © 2014 Airbus Defence and Space SAS

Airbus Defence and Space
space@electronics-airbusds.com
www.airbusdefenceandspace.com